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(54) PACKAGING MATERIAL WITH INVISIBLE INFORMATION

VERPACKUNGSMATERIAL MIT UNSICHTBARER INFORMATION

MATERIAU D'EMBALLAGE PORTANT DES RENSEIGNEMENTS INVISIBLES

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Description

[0001] This invention generally relates to a packaging material with invisible information, a packaging container with invisible information, and a filling and packaging procedure. More particularly, the present invention relates to a packaging container obtained by forming a continuous paper packaging material in a tubular form in the longitudinal direction, filling the tubular packaging material with contents such as fruit juice, tea, liquid dairy products, etc., applying lateral seals in the lateral direction at specified intervals on the tubular packaging material, and cutting the packaging material along the lateral line seals.

[0002] A packaging material, a packaging container and a process for filling and packaging a container of this type is disclosed in EP 0 025 235 A. It teaches to form a packaging container for beverages by forming into a tubular shaped packaging material of a paper plastic laminate impressed with crease lines, filling the tubularly formed packaging material with contents or an object to be packaged, applying lateral line seals to the tubular packaging material at specified intervals so as to form first in a primary shape of a pillow or cushion, cutting the shaped material at constant intervals and then folding along crease lines to form a final shape. The final shape may be that of a brick (hexahedron), a polygonal (more than four edged) column, hexagonal columns, octagonal column, decagonal column, or tetrahedron having four triangular faces. For forwarding the packaging material web with great precision so that the crease line pattern will coincide with the position of the shaping elements, a movable element is suggested which is adapted so that it is made periodically to engage the packaging material web and by means of which the web is advanced. It is suggested to realise this by means of a winch having accentuated corner points which are adapted so that they can be made to engage with the transverse crease line pattern arranged on the web, or by means of a photoelectric pick-up device detecting marking printed in the web.

[0003] EP 0 043 723 A2 describes a system for the encoding of control information to a substantially continuous web of material for use in packaging and other applications. For repeatedly registering the web with stations where manufacturing operations are to be performed, it is suggested to provide locating portions with invisible components for signal emission as an integral part of the web. The invisible components may be a transparent pattern of material which emits wavelength shifted radiation in response to a relatively high intensity electromagnetic radiation or spaced strips of wave shifting material for processing control information. Said indicia are superimposed over the printed material and are transparent so that their presence does not interfere with the decoration and information in the printed areas.

[0004] Along with external design printing on the surface of a packaging container product, the packaging

material is also provided with control numbers and manufacturing lot numbers used in manufacturing processes for the packaging material including printing, lamination, and cutting. This provides a controlling convenience for customers carrying out the filling work. In the liquid food packaging process, lot numbers of the packaged product or contents are also provided on the packaging container products. The packaging material is further provided with register marks at specified intervals so that the external design of the packaging container product is placed in a correct position, so that the lateral line seals in the lateral direction are applied to the tubular packaging material at the specified intervals, and so that cuts along the lateral line seals can be made to obtain the packaging container. Conventionally, as disclosed in Japanese Patent Application Laid-Open No. Sho-60-84,676, register marks in the form of bar codes are provided so that the lateral line seals are applied to the specified positions and so that the packaging material is cut along the lateral line seals.

[0005] However, when the external appearance surface of the conventional packaging container product is provided with the control number, the lot number, the lateral line seals in specified positions, and the register marks for cutting the packaging material along the lateral line seals, the already limited amount of packaging container surface area where printing may be applied becomes even smaller, and the possibility of applying an external design is considerably restricted.

[0006] Japanese Patent Publication No. Hei-4-51,414 proposes a plastic printed tube in which the tube is provided with a seal positioning mark that emits light when struck with ultraviolet rays. Another proposal discussed in Japanese Patent Publication No. Sho-61-18,231 involves a record paper that is provided with a latent image that emits light when struck with infrared rays. However, no applications have been proposed in the field of packaging containers made by forming a packaging material in a tubular shape, filling the tubular shape with contents such as fruit juice, tea, liquid dairy products, etc., applying lateral line seals to the tubular shape, and then cutting the product to obtain a packaging container.

[0007] It is the object of the present invention to provide a packaging material, a packaging container and a packaging filling process of the above-mentioned type which makes it possible, without reducing the surface area on the packaging container where printing is to be made and without restricting the external design possibilities of the container, to provide the external appearance surface of a packaging container with information enabling a control or a proper registration of the product.

[0008] According to the present invention, this object is attained with a packaging material, a packaging container and a process for filling and packaging a container having the features cited in claims 1, 5 and 7, respectively.

[0009] For example, the invisible information may be printed in infrared ink and followed by superimposed

printing of a bar code in a material that does not contain infrared-absorbing pigments such as carbon black so that the invisible information may be read simultaneously with the visible information at a shop registered using an infrared sensor, and this may be utilised for quality control or warranty claim control. In case of various warranty claims from marketing routes or from consumers, the invisible information may be read and immediate actions taken. At the time, by reading the invisible information with infrared readers at retail shops, problem commodities are prevented from being sold by mistake.

[0010] Preferred embodiments of the invention provide the invisible information by: printing on the packaging material in infrared ink that emits infrared rays when excited with a specified excitation means; printing on the packaging material in ultraviolet ink that emits ultraviolet rays when excited with a specified excitation means; applying a magnetized magnetic tape strip to the packaging material; printing on the packaging material in magnetized magnetic ink; attaching coils to the packaging material that send out varying electric/magnetic field by means of specified external electric/magnetic field; and an arrangement comprising external signal receiving means, processing means for sending out information in response to the external signal, and transmitting means for sending out the signal sent out.

[0011] In the preferred embodiment of the invention, the invisible information may be at least one piece of information selected from: product information relating to the contents to be packaged; packaging material information relating to the packaging material from which the container is manufactured; manufacturing information relating to the filling of the container; and marketing information associated with marketing the packaging container.

[0012] In the preferred embodiment of the invention, the invisible information provided at specified intervals on a tubularly formed, continuously fed packaging material is detected with a detector, the lateral seals are applied in the lateral line seal positions on the packaging material as determined from the detected invisible information, and the packaging material is cut along the lateral seals to form a primary shape.

[0013] In accordance with the present invention, since invisible information is provided, information may be obtained from outside by invisible means and can be discriminated from visible information. That is, visible designs, characters, symbols, numerals, etc. are not affected.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0014] Additional features and characteristics of the present invention will become more apparent from the detailed description set forth below considered in conjunction with the accompanying drawing figures in which like elements are designated by like reference numerals and wherein:

Fig. 1 is a perspective view showing the general construction of a packaging-filling machine for making packaging containers according to the present invention;

Fig. 2 is a plan view of a portion of a continuous packing material used to make packaging containers and embodying invisible information in accordance with the present invention; and

Fig. 3 is a perspective view of a packaging container embodying invisible information in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0015] Packaging materials that may be used in conjunction with the present invention are typically multi-layer laminates which typically include a paper-based material for a paper container, with thin layers of thermoplastic resin, for example polyethylene, laminated on both sides of the paper. Another example comprises a paper base material layer with its one surface provided with an outside polyethylene layer, and with its other surface provided with an oxygen barrier aluminum foil layer sandwiching a polyethylene laminate, an inner polyethylene layer on the inside surface of the aluminum foil layer, and further two inside polyethylene layers inside the inner polyethylene layer, with the outside polyethylene layer to be in contact with food. Furthermore, a band-shaped odor-retaining paper-based packaging material with its at least one surface having a polyester layer may be used. Here, the polyester layers are provided on both or one surface of the packaging material, which is single polymer of polyethylene-terephthalate or copolymer of polyethylene-terephthalate and other monomer, for example amorphous polyester resin (A-PET) with its degree of polymerization, average molecular weight. Other kinds of monomers, additives, etc. may be appropriately selected depending on applications. Examples of a packaging material construction include A-PET layer/adhesive resin/aluminum foil/LDPE/paper layer/LDPE, etc.

[0016] The final shape of the container may be an angular column, preferably polygonal column having more than four edges, a hexagonal column, an octagonal column, a decagonal column, a tetrahedron with four triangular faces, or a brick shape (hexahedron).

[0017] Generally speaking, the present invention involves a packaging material provided with invisible information and used to make a packaging container, as well as a packaging container that includes invisible information; the invisible information being used in the context of the present invention to provide a variety of advantages. The invisible information can take one of several different forms. The invisible information can be applied by printing on the packaging material in infrared ink that emits infrared rays when excited with a specified excitation means, printing on the packaging material in ultraviolet ink that emits ultraviolet rays when excited

with a specified excitation means, applying a magnetized magnetic tape strip to the packaging material, printing on the packaging material in magnetized magnetic ink, attaching to the packaging material coils that send out varying electric/magnetic field by means of specified external electric/magnetic field, and an arrangement comprising external signal receiving means, processing means for sending out information in response to the external signal, and transmitting means for sending out the signal sent out. The invisible information is superimposed on the visible product bar code on the external surface of the packaging container. The invisible information can be related to product information on the object or contents to be packaged, packaging material information on the packaging material, manufacturing information on filling the container, and marketing information for marketing the packaging container.

[0018] When the invisible information is provided by printing on the packaging material in infrared ink that emits infrared rays when excited with a specified exciting means, infrared rays easily penetrate foreign substances such as stains and blots of ink on the surface without being affected by such substances. As a result, highly reliable invisible information may be provided on the container and the packaging material. An example of an ink composition emitting infrared rays is disclosed in Japanese Patent Publication No. Sho-54-22,326.

[0019] When the invisible information is provided by printing on the packaging material in ultraviolet ink that emits ultraviolet rays when excited with a specified exciting means, an economical invisible information reading system may be fabricated because a fluorescent mark sensor having an ultraviolet rays emitting and receiving sections is inexpensive.

[0020] When the invisible information is provided by application of a magnetized magnetic tape strip to the packaging material, or by printing on the packaging material in magnetized magnetic ink, a general purpose invisible information reading system may be used rather than an expensive or special invisible information reading system. Furthermore, with the magnetic tape and the magnetic ink application, a large amount of information may be stored and retrieved.

[0021] When the invisible information is provided by application of a coil for sending out varying electric/magnetic fields in response to specified external input to the electric/magnetic fields, since the information is detected with electromagnetic means without contact rather than with contact, more reliable, high speed information may be provided. The coil that is applied to the packaging material can be similar to antitheft tags and labels that are applied to goods by store owners. These can be in the form of, for example, a flat coil that is applied to a piece of paperboard.

[0022] When the invisible information is provided by means for receiving external signals and processing means for sending out information in response to the external signals, for example an IC chip having the

above-mentioned functions, a large amount of data information may be exchanged at a high speed. Also, when the IC is provided with a large capacity memory means, a large amount of information for lot numbers of the packaging material, control numbers and packaging material manufacture lot numbers of the packaging material in processes including printing, lamination, and cutting, packaged product lot number, manufactured date, manufactured site and other information relating to the liquid food packaging process may be stored. Information on wholesalers, representatives, distributors, and consumers may also be stored. The invisible information may be printed in infrared ink followed by superimposed printing of a bar code in an ink that does not contain infrared-absorbing pigments such as carbon black so that the invisible information may be read simultaneously with the visible information at the shop register using an infrared sensor, and this may be utilized for quality control or warranty claim control.

[0023] With reference to FIG. 1, the general construction of a packaging-filling machine for processing packaging material and forming filled containers in accordance with the present invention includes a packaging material reel 2 formed by winding and storing a continuous paper-based packaging material impressed with crease lines and provided with pieces of invisible information at specified intervals. A variety of rollers are also provided for guiding and running the packaging material 1 drawn out from the reel 2. A strip applicator is provided for applying a strip tape 9 to an edge of the packaging material 1.

[0024] To sterilize the packaging material, a sterilizing tank filled with hydrogen peroxide solution can be appropriately positioned for allowing the material to pass through the tank. Squeezing rollers can also be provided for removing hydrogen peroxide solution wetting the packaging material. The device can further be outfitted with an air knife for blowing heat-sterilized air to the packaging material, rollers for guiding and running the packaging material to a forming process, and a forming ring for forming the packaging material into a tubular shape 3.

[0025] A filler pipe 10 fills the tubular packaging material 3 with liquid food. A longitudinal line seal nozzle and lower forming rings heat both ends of the packaging material 3 formed in a tubular shape in the longitudinal direction and weld both ends by pressing from inside and outside. A sensor (A) reads the invisible information provided at specified intervals on the surface of the tubular packaging material 3. A jaw unit (not specifically shown) applies lateral line seals at constant intervals in the lateral direction on the tubular packaging material 3' in alignment with external designs for the packaging container corresponding to signals from the sensor (A). A knife (not specifically shown) is provided for cutting the tubular packaging material 3' between upper and lower lateral line seals to form a pillow-shaped primary formed container 4, and a final holder unit (not speci-

cally shown) forms the pillow-shaped primary formed container 4 into its final rectangular parallelepiped shape. Details of the device or machine shown in Fig. 1 associated with guiding the packaging material, sterilizing the packaging material, forming the packaging material into a tubular shape, transverse sealing the tubular shaped packaging material, cutting the tubular shaped packaging material at the line seals and finally forming the pillow-shaped packaging material into a rectangular parallelepiped container are known and are not set forth herein in detail.

[0026] The packaging material 1 that is drawn out from the reel 2 is illustrated in Fig. 2 which shows the crease lines 12 that extend across the width of the material. In addition, the packaging material 1 is schematically depicted as having indicia 14 (e.g., descriptive information, designs, coloring, etc.) which forms the typical external design appearance seen on a finished packaging container. The invisible information 20 contained on the packaging material 1 is also illustrated in dotted outline configuration as it is understood that such information would not be readily visible to the naked eye. The position of the invisible information is identified merely for illustrative purposes and is not intended to be an indication of the exact position of the invisible information as such position would depend upon the particular context in which the information is used.

[0027] Fig. 3 depicts a configuration for a packaging container 4 in accordance with the present invention in which the container is defined by a plurality of upright side walls 16 and oppositely positioned end walls 18. An end wall seal 22 is provided at one end of the container and is folded down onto the surface of the container. The exterior design appearance formed by various types of indicia 14 is also shown as is the invisible information 20 which is once again shown in dotted outline configuration.

[0028] The packaging and filling procedure using the device or machine of the present invention as described above and depicted in Fig. 1 involves first preparing or obtaining a packaging material reel 2. This reel 2 is made by winding and storing a continuous paper-based packaging material impressed with crease lines and provided with pieces of invisible information at specified intervals. While the kind of invisible information used in the invention may be selected from among various kinds described above, this embodiment is assumed to use infrared ink to provide register marks at specified intervals on the packaging material so as to adjust the external design marks for the packaging containers and to print so-called product bar codes over the register marks. The external appearance designs, characters, and symbols are also printed here.

[0029] The packaging material 1 is drawn out from the packaging material reel 2, and is then passed and guided over rollers to the sterilizing tank where the material is soaked. After the soaking, sterilizing solution wetting the packaging material is removed with, for example,

squeeze rollers, and heated sterilized air is blown out of the air knife to dry the packaging material wetted with the sterilizing solution.

[0030] Next, the sterilized packaging material is guided and passed through a sterilized atmosphere over rollers to a forming process where the packaging material is formed into a tubular shape in the longitudinal direction. Both ends of the tubular packaging material are heated with a longitudinal line seal nozzle and welded while being pressed from inside and outside with the lower forming rings. The tubular packaging material is filled with liquid food through the filler pipe 10. The liquid food packaged in this embodiment can be, for example, tea with lemon, green tea, and juice. Here, the end of the filler nozzle in the tubular packaging material is always positioned below the liquid food surface in the packaging material so that bubbles are prevented from being produced when the liquid food is charged into the container.

[0031] The infrared sensor (A) detects the invisible information (position signals for the register marks and the designs) and sends signals corresponding to the detected signals to a design adjustment system to correct the design positions. After correcting the design positions, lateral line seals in the lateral direction are applied at a position below the liquid surface to the tubular packaging material at specified intervals by means of the jaw unit. Sealing in this way prevents air from being left in the container so that the quality of the packaged contents or food is maintained. The lateral seal lines and the invisible information can be set forth on the packaging material at the same specified intervals.

[0032] Next, a cutting is made between upper and lower lateral line seals to obtain a pillow-shaped, primary formed container 4. The pillow-shaped, primary formed container 4 is further formed into the final shape of a rectangular parallelepiped in a forming unit. The invention is not limited to this embodiment but various modifications may be made. For example, the final shape, in addition to the rectangular parallelepiped, may be tetrahedron, hexagonal cylinder, octagonal cylinder, and so on.

[0033] Since the packaging container obtained by the procedure described above is provided with invisible information printed in infrared ink and superimposed on the product bar code, various kinds of information concerning the packaging container product may be provided. This information includes packaging material lot numbers, control numbers and packaging material manufacture lot numbers involved in printing, lamination, and cutting processes when the packaging material is manufactured; packaged product lot numbers, date of manufacture, and site of manufacture, in the process of liquid food packaging. In cases of various warranty claims from marketing routes or from consumers, the invisible information may be read and immediate actions may be taken. At the same time, by reading the invisible information with infrared readers at retail shops, prob-

lem commodities are prevented from being sold by mistake.

[0034] As exemplified above with the described embodiment, the present invention provides the following advantageous effects. The surface area of the packaging container where printing may be placed is not reduced and the external design possibilities are not restricted even if information including control numbers and lot numbers, and register marks for applying lateral line seals and for cutting the packaging material along the lateral line seals at specified positions are provided on the external surfaces of the packaging container products.

[0035] Also, when the invisible information is provided by printing on the packaging material in infrared ink capable of emitting infrared rays, infrared rays easily penetrate foreign substances such as stains and blots of ink on the surface without being affected by such substances. As a result, highly reliable invisible information may be provided on the container and the packaging material. When the invisible information is provided by printing on the packaging material in ultraviolet ink that emits ultraviolet rays when excited with a specified exciting means, an economical invisible information reading system may be fabricated because a fluorescent mark sensor having ultraviolet rays emitting and receiving sections is inexpensive.

[0036] Additionally, when the invisible information is provided by application of a magnetized magnetic tape strip to the packaging material, or by printing on the packaging material in magnetized magnetic ink, a general purpose invisible information reading system may be used rather than an expensive or special invisible information reading system. Furthermore, with the magnetic tape and the magnetic ink application, a large amount of information may be stored and retrieved.

[0037] When the invisible information is provided by means for receiving external signals and processing means for sending out information in response to the external signals, for example an IC chip having the above-mentioned functions, a large amount of data information may be exchanged at a high speed. Also, when the IC is provided with a large capacity memory, a large amount of information relating to lot numbers of the packaging material, control numbers and packaging material manufacture lot numbers of the packaging material in processes including printing, lamination, and cutting, packaged product lot number, manufactured date, manufactured site and other information relating to liquid food packaging process may be stored. Information on wholesalers, representatives, distributors, and consumers may also be stored.

[0038] The invisible information is provided as superimposed on the visible product bar code on the external surface of the packaging container and may be printed in infrared ink followed by superimposed printing of a bar code in an ink that does not contain infrared-absorbing pigments such as carbon black so that the invisible

information may be read simultaneously with the visible information at the shop register using an infrared sensor, and this may be utilized for quality control or warranty claim control.

5 [0039] When the invisible information is provided by printing in infrared ink superimposed on the product bar code, various kinds of information concerning the packaging container product may be provided including: packaging material lot numbers; control numbers and
10 packaging material manufacture lot numbers associated with printing, lamination, and cutting processes when the packaging material is manufactured; packaged product lot numbers, date of manufacture, and site of manufacture, in the process of liquid food packaging. In
15 cases of various warranty claims from marketing routes or from consumers, the invisible information may be read and immediate actions taken. At the same time, by reading the invisible information with infrared readers at retail shops, problem commodities are prevented from
20 being sold by mistake.

[0040] The principles, preferred embodiments and modes of operation of the present invention have been described in the foregoing specification. However, the invention which is intended to be protected is not to be
25 construed as limited to the particular embodiments disclosed. Further, the embodiments described herein are to be regarded as illustrative rather than restrictive. Variations and changes may be made by others without departing from the scope of the present invention as defined in the claims.
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Claims

- 35 1. A packaging material (1) used to produce a packaging container (4) containing contents by forming the packaging material impressed with crease lines (12) into a tubular shape packaging material in a longitudinal direction of the packaging material (1),
40 filling the tubular shape packaging material with contents, impressing lateral line seals at specified intervals, cutting the packaging material (1) along the lateral seals to form a primary shape, and folding the packaging material along the crease lines (12) to form a final shape container, characterized in that the packaging material (1) has at specified
45 intervals between adjacent crease lines (12) invisible information (20) superimposed on a visible product bar code on an external surface of a container (4) produced with the packaging material (1), and said invisible information (20) includes information concerning positions for applying the lateral seal lines and cutting the packaging material.
- 50 2. A packaging material used to produce a packaging container in accordance with Claim 1, wherein said invisible information (20) is infrared ink that emits
55 infrared rays by means of a specified exciting de-

vice, the infrared ink being printed on the packaging material (1).

3. A packaging material used to produce a packaging container in accordance with Claim 1, wherein said invisible information (20) is ultraviolet ink that emits ultraviolet rays by means of a specified exciting device, the ultraviolet ink being provided by printing on the packaging material (1).

4. A packaging material used to produce a packaging container in accordance with Claim 1, wherein the invisible information (20) is magnetized magnetic ink printed on the packaging material (1).

5. A packaging container (4) containing contents and produced by forming a packaging material (1) having impressed crease lines (12) into a tubular shape packaging material in a longitudinal direction of the packaging material (1), filling the tubular shape packaging material with contents, impressing lateral line seals at specified intervals, cutting the packaging material (1) along the lateral seals to form a primary shape, and folding the packaging material along the crease lines (12) to form a final shape container (4), comprising a container having a plurality of side walls (16) and oppositely positioned end walls (18), the container having an external surface, the container being provided with contents, characterized in that invisible information (20) is superimposed on a visible product bar code on the external surface of the container (4).

6. A packaging container in accordance with Claim 5, wherein the invisible information (20) includes at least one piece of information selected from contents information concerning the contents in the container (4), packaging material information concerning packaging material (1) from which the container is made, manufacturing information concerning filling the container (4), and marketing information concerning marketing the container.

7. A filling and packaging process for filling and packaging a container (4):

forming a continuous packaging material (1) impressed with crease lines (12) into a tubular shaped packaging material in a longitudinal direction of the packaging (1),

filling the tubular shaped packaging material (1) with contents to be packaged;

impressing lateral line seals in a lateral direction of the tubular shaped packaging material at specified intervals;

cutting the packaging material (1) along said lateral seals to form a primary shape;

folding said packaging material (1) along said crease lines (12) to form a final shape packaging container,

characterised in that

the packaging material (1) is provided with invisible information (20) superimposed on a visible product bar code on an external surface of the packaging material (1) at said specified intervals between adjacent crease lines (12) and the lateral line seals are applied at positions determined according to said invisible information (20) on said packaging material (1), and the packaging material (1) is cut along the lateral seal lines at positions determined according to said invisible information (20) on said packaging material (1).

8. A filling and packaging process in accordance with claim 7, wherein the invisible information (20) is provided at said specified intervals on the tubular shaped continuous fed packaging material (1) and is detected with a detector (A).

Revendications

1. Un matériau d'emballage (1) utilisé pour produire un récipient d'emballage (4) contenant un contenu, par impression sur le matériau d'emballage, lors de sa formation, de lignes de pliure (12) en donnant un matériau d'emballage à forme tubulaire, dans la direction longitudinale du matériau d'emballage (1), remplissage du matériau d'emballage à forme tubulaire par le contenu, impression de scellements linéaires latéraux, à des intervalles spécifiés, découpage du matériau d'emballage (1) le long des scellements latéraux pour donner une forme primaire et pliage du matériau d'emballage le long des lignes de pliure (12) pour former un récipient à la forme finale, caractérisé en ce que le matériau d'emballage (1) comporte, à des intervalles spécifiés entre des lignes de pliure (12), des renseignements invisibles (20) superposées à un code-barre visible de produit, sur une surface externe d'un récipient (4) produit par le matériau d'emballage (1), et lesdits renseignements invisibles (20) comprennent un renseignement concernant les positions d'application des lignes de scellement latérales et le découpage du matériau d'emballage.
2. Un matériau d'emballage utilisé pour produire un récipient d'emballage selon la revendication 1, dans lequel lesdits renseignements invisibles (20) sont réalisés en encre infra-rouge émettant des rayons infra-rouges au moyen d'un dispositif d'excitation

spécifié, l'encre infra-rouge étant imprimée sur le matériau d'emballage (1).

3. Un matériau d'emballage utilisé pour produire un récipient d'emballage selon la revendication 1, dans lequel lesdites renseignements invisibles (20) sont à l'encre ultra-violette qui émet des rayons ultra-violets par utilisation d'un dispositif d'excitation spécifié, l'encre ultra-violette étant fournie par l'impression sur le matériau d'emballage (1).
4. Un matériau d'emballage utilisé pour produire un récipient d'emballage selon la revendication 1, dans lequel les renseignements invisibles (20) sont à l'encre magnétique magnétisée, imprimée sur le matériau d'emballage (1).
5. Un récipient d'emballage (4) contenant un contenu et produit par formage d'un matériau d'emballage (1) comprenant une formation de lignes de pliure (12), en donnant un matériau d'emballage à forme tubulaire, en direction longitudinale du matériau d'emballage (1), remplissage du matériau d'emballage à forme tubulaire par le contenu, application des scelllements linéaires latéraux à des intervalles spécifiés, découpage du matériau d'emballage (1) le long des scelllements latéraux pour former une forme primaire et pliage du matériau d'emballage le long des lignes de pliure (12) pour former un récipient (4) à la forme finale, comprenant un récipient ayant une pluralité de parois latérales (15) et de parois d'extrémité (18) positionnées à l'opposé, le récipient comportant une surface externe, le récipient étant gami du contenu, caractérisé en ce que des renseignements invisibles (20) sont superposés à un code-barre de produit visible placé sur la surface externe du récipient (4).
6. Un récipient d'emballage selon la revendication 5, dans lequel les renseignements invisibles (20) comprennent au moins un élément de renseignement sélectionné dans un renseignement de contenu concernant le contenu du récipient (4), un renseignement de matériau d'emballage concernant le matériau d'emballage (1) dont le récipient est constitué, un renseignement de fabrication concernant le remplissage du récipient (4), et un renseignement de commercialisation concernant la commercialisation du récipient.
7. Un procédé de remplissage et d'emballage pour remplir et emballer un récipient (4), comprenant les étapes consistant à :

former un matériau d'emballage continu (1) ayant reçu par impression des lignes de pliure (12) en un matériau d'emballage à forme tubulaire, dans la direction longitudinale de l'emballage (1);

remplir le matériau d'emballage (1) à forme tubulaire par un produit à emballer;
imprimer des scelllements linéaires latéraux dans une direction latérale du matériau d'emballage à forme tubulaire, à des intervalles spécifiés;
découper l'emballage terminé (1) le long desdits scelllements linéaires latéraux pour donner une forme primaire;
plier ledit matériau d'emballage (1) le long desdites lignes de pliure (12) pour donner un matériau d'emballage à forme finale;

caractérisé en ce que

le matériau d'emballage (1) est muni de renseignements invisibles (20) superposés à un code-barre visible produit sur une surface externe du matériau d'emballage (1), à des intervalles spécifiés entre des lignes de pliure (12) adjacentes, et les scelllements linéaires latéraux étant appliqués à des positions déterminées d'après lesdits renseignements invisibles (20) sur ledit matériau d'emballage (1), et le matériau d'emballage (1) étant découpé le long des scelllements linéaires latéraux à des positions déterminées selon lesdits renseignements invisibles (20) sur ledit matériau d'emballage (1).

8. Un procédé de remplissage et d'emballage selon la revendication 7, dans lequel les renseignements invisibles (20) sont fournis auxdits intervalles spécifiés sur le matériau d'emballage (1), fourni en continu et à forme tubulaire, et sont détectés à l'aide d'un détecteur (A).

Patentansprüche

1. Verpackungsmaterial (1), das dazu verwendet wird, einen Verpackungsbehälter (4) herzustellen, der Inhalte enthält, durch Bilden des Verpackungsmaterials, eingeprägt mit Falzlinien (12), zu einem Verpackungsmaterial in einer rohrförmigen Form in einer Längsrichtung des Verpackungsmaterials (1), Füllen des Verpackungsmaterials in rohrförmiger Form mit Inhalten, Einprägen lateraler Liniendichtungen unter spezifizierten Intervallen, Schneiden des Verpackungsmaterials (1) entlang der lateralen Dichtungen, um eine primäre Form zu bilden, und Falten des Verpackungsmaterials entlang der Falzlinien (12) zu einer Form eines Behälters mit Endform, dadurch gekennzeichnet, daß das Verpackungsmaterial (1) unter spezifizierten Intervallen zwischen benachbarten Falzlinien (12) unsichtbare Informationen (20) besitzt, die auf einem sichtbaren Produktbalkencode auf einer äußeren Fläche eines Behälters (4), hergestellt mit dem Verpackungsmaterial (1), überlegt sind, und wobei die unsichtbaren

Informationen (20) Informationen umfassen, die sich auf Positionen zum Aufbringen der lateralen Dichtlinien und zum Schneiden des Verpackungsmaterials beziehen.

2. Verpackungsmaterial, das dazu verwendet wird, einen Verpackungsbehälter herzustellen, nach Anspruch 1, wobei die unsichtbaren Informationen (20) infrarote Farbe sind, die infrarote Strahlen mittels einer spezifizierten Anregungsvorrichtung emittiert, wobei die infrarote Farbe auf dem Verpackungsmaterial (1) aufgedruckt ist.
3. Verpackungsmaterial, das dazu verwendet wird, einen Verpackungsbehälter herzustellen, nach Anspruch 1, wobei die unsichtbaren Informationen (20) ultraviolette Farbe sind, die ultraviolette Strahlen mittels einer spezifizierten Anregungsvorrichtung emittiert, wobei die ultraviolette Farbe durch Drucken auf dem Verpackungsmaterial (1) vorgesehen ist.
4. Verpackungsmaterial, das dazu verwendet wird, einen Verpackungsbehälter herzustellen, nach Anspruch 1, wobei die unsichtbaren Informationen (20) magnetisierte, magnetische Farbe sind, die auf dem Verpackungsmaterial (1) aufgedruckt ist.
5. Verpackungsbehälter (4), der Inhalte enthält und durch Bilden eines Verpackungsmaterials (1) hergestellt ist, das eingeprägte Falzlinien (12) besitzt, zu einem Verpackungsmaterial mit rohrförmiger Form in einer Längsrichtung des Verpackungsmaterials (1), Füllen des Verpackungsmaterials in rohrförmiger Form mit Inhalten, Einprägen lateraler Liniendichtungen unter spezifizierten Intervallen, Schneiden des Verpackungsmaterials (1) entlang der lateralen Dichtungen, um eine primäre Form zu bilden, und Falten des Verpackungsmaterials entlang der Falzlinien (12), um einen Behälter (4) einer Endform zu bilden, aufweisend einen Behälter, der eine Vielzahl von Seitenwänden (16) und gegenüberliegend positionierte Endwände (18) besitzt, wobei der Behälter eine äußere Oberfläche besitzt, wobei der Behälter mit Inhalten versehen ist, gekennzeichnet dadurch, daß unsichtbare Informationen (20) auf einem sichtbaren Produktbalkencode auf der äußeren Oberfläche des Behälters (4) überlegt sind.
6. Verpackungsbehälter nach Anspruch 5, wobei die unsichtbaren Informationen (20) mindestens einen Teil von Informationen umfassen, der aus Inhalts-Informationen, die die Inhalte in dem Behälter (4) betreffen, Verpackungsmaterial-Informationen, die das Verpackungsmaterial (1) betreffen, aus dem der Behälter hergestellt ist, Herstell-Informationen, die sich auf das Füllen des Behälters (4) beziehen,

und Marketing-Informationen, die sich auf ein Marketing des Behälters beziehen, ausgewählt ist.

7. Füll- und Verpackungsverfahren zum Füllen und Verpacken eines Behälters (4):

Bilden eines kontinuierlichen Verpackungsmaterials (1), das mit Falzlinien (12) geprägt ist, zu einem rohrförmig geformten Verpackungsmaterial in einer Längsrichtung der Verpackung (1),
Füllen des rohrförmig geformten Verpackungsmaterials (1) mit Inhalten, die verpackt werden sollen,
Einprägen lateraler Liniendichtungen in einer lateralen Richtung des rohrförmig geformten Verpackungsmaterials unter spezifizierten Intervallen,
Schneiden des Verpackungsmaterials (1) entlang der lateralen Dichtungen, um eine primäre Form zu bilden,
Falten des Verpackungsmaterials (1) entlang der Falzlinien (12), um einen Verpackungsbehälter mit Endform zu bilden,

dadurch gekennzeichnet, daß
das Verpackungsmaterial (1) mit unsichtbaren Informationen (20), überlegt auf einem sichtbaren Produktbalkencode auf einer äußeren Oberfläche des Verpackungsmaterials (1) unter den spezifizierten Intervallen zwischen benachbarten Falzlinien (12), versehen ist, und die lateralen Liniendichtungen an Positionen aufgebracht werden, die entsprechend den unsichtbaren Informationen (20) auf dem Verpackungsmaterial (1) bestimmt sind, und das Verpackungsmaterial (1) entlang der lateralen Dichtungsstellen an Positionen geschnitten wird, die entsprechend den unsichtbaren Informationen (20) auf dem Verpackungsmaterial (1) bestimmt sind.

8. Füll- und Verpackungsverfahren nach Anspruch 7, wobei die unsichtbaren Informationen (20) unter den spezifizierten Intervallen auf dem rohrförmig geformten, kontinuierlichen, zugeführten Verpackungsmaterial (1) vorgesehen sind und mit einem Detektor (A) erfaßt werden.

FIG. 1

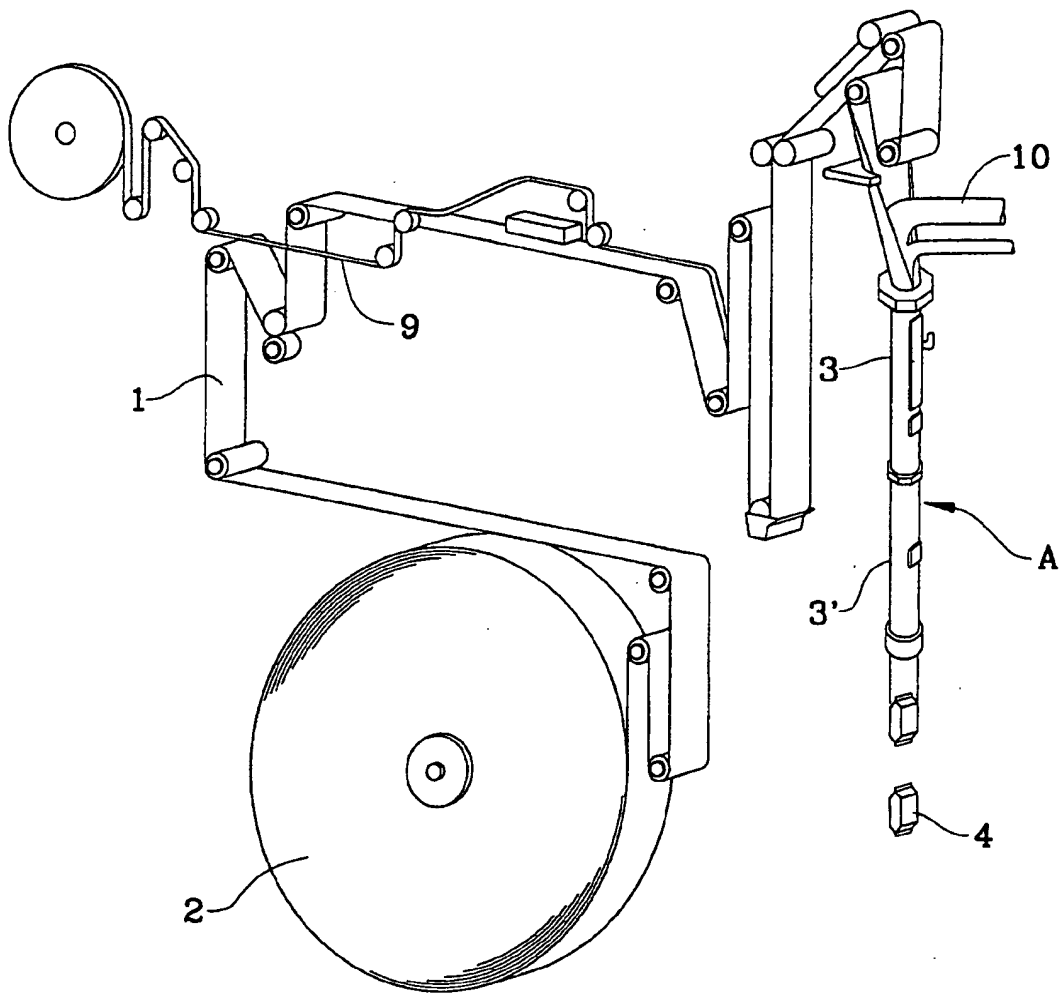


FIG. 2

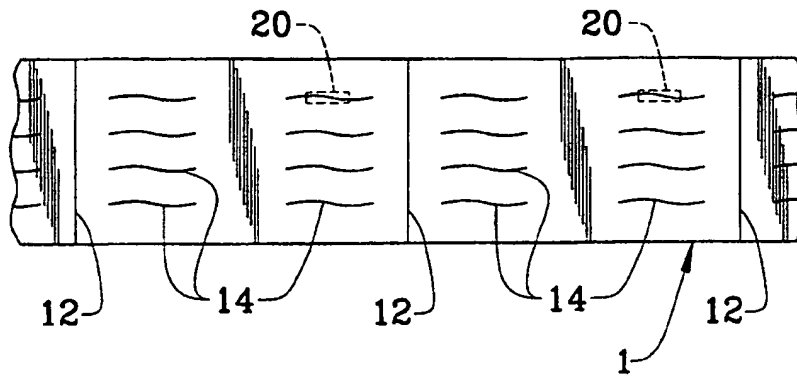


FIG. 3

